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**ACACIA SIMMONSIANA (LEGUMINOSAE:
MIMOSOIDEAE: SECT. PHYLLODINEAE), A NEW SPECIES
FROM SOUTH-EASTERN AUSTRALIA**

M.C. O'Leary^a and B.R. Maslin^b

^aState Herbarium of South Australia, Plant Biodiversity Centre,
PO Box 2732, Kent Town, South Australia 5071.

Email: OLeary.Martin@saugov.sa.gov.au (Corresponding author)

^bWestern Australian Herbarium, Department of Conservation
and Land Management, Locked Bag 104, Bentley Delivery Centre,
Western Australia 6983.

Email: brucecm@calm.wa.gov.au

Abstract

A new species of *Acacia*, *A. simmonsiana*, is described and illustrated. It has a discontinuous distribution in south-eastern Australia where it extends from Kangaroo Island in South Australia to far northwest Victoria and south-central New South Wales. Until now *A. simmonsiana* had been treated as a variant of *A. halliana*, to which it is most closely related.

Introduction

The new species described here as *A. simmonsiana* was treated as a variant of *A. halliana* by Maslin (1987) and this is how it is presented in the *Flora of Australia* treatment of *Acacia* (Maslin 2001). However, recent field studies and a re-examination of herbarium collections indicate that formal species rank is appropriate for this taxon. It was included, as *A. simmonsiana*, in the recently published electronic interactive key, *WATTLE Acacias of Australia* (Maslin 2001a).

Although both *A. simmonsiana* and *A. halliana* have in the past been confounded with *A. microcarpa* neither is especially closely related to that species (see Maslin 1987 for discussion). However, because of this confusion *A. simmonsiana* occasionally appeared in publications under the name of *A. microcarpa*, for example, the illustration on the front cover and on page 80 (fig. 106) of Jackson (1988).

Judging from a note attached to herb. AD sheet 98583264 it is apparent that E.H. Ising recognized both narrow and broad phyllode entities within what was then known as *A. microcarpa*. The narrow phyllode entity is *A. simmonsiana* (see AD 98583264) and the broad one is most likely to be *A. halliana*.

Taxonomy

Acacia simmonsiana O'Leary and Maslin, *sp. nov.* Fig. 1.

Acacia iteaphylla var. *latifolia* F. Muell., *J. Proc. Linn. Soc., Bot.* 3: 125 (1859), *pro parte*, not as to lectotype, as to Murray R., near Wellington, 1 May 1849, *Wuerth s. n.* – *fide* B.R. Maslin, *Nuytsia* 12: 353 (1999).

Ab *A. halliana* ramulis glabris, phyllodiis parvioribus incurvatis plerumque oblanceolatis (12-) 14–45 (-72) mm longis, (2-) 3–9 (-15) mm latis, capitulis parvioribus quoque (16-) 20–34 (-36) floribus, leguminibus uniformiter curvatis non (vel leviter) constrictis inter semena differt.

Typus: South Australia, Murray Region, 3.5 km by road S of Monarto South, 19 Sept. 1985, B.R. Maslin 5977; *holo*: PERTH; *iso*: AD, K, NSW.



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Fig. 1. *A. simmonsiana*. (A composite from AD 99129461 & MO'L 1295; B from MO'L 1295 (left hand phyllode), AD 97046124 (second from left), AD 99129461 (third from left), AD 99129459 (second from right) and AD 99129460 (right hand phyllode); C from AD 97046124; D - K from AD 99129461; L - Q from AD 966061159.) A, habit; B, phyllodes showing range of variation; C, gland (plane view); D, stem (with most phyllodes removed) showing stipules; E, stipules; F, inflorescence; G, flower bud showing free sepals; H, flower

Bushy, spreading *shrub*, commonly domed and procumbent, to 2m high and to 4m diam. *Branchlets* reddish, prominently angular at first but soon terete, finely ribbed, glabrous. *Bark* smooth, grey. *New shoots* glabrous. *Stipules* linear – triangular, 2–4 (-5) mm long, 0.5–1mm wide at base, brittle, reddish green to grey-green, often not drying black as in *A. halliana*, usually completely deciduous or reduced (0.5–1mm long) on N.S.W. specimens. *Phyllodes* oblanceolate, sometimes interspersed with a few that are narrowly elliptic, (12-) 14–45 (-72) mm long, (2-) 3–9 (-15) mm wide, l:w = 4–10 (-16), commonly variable in size range on a single branch, ascending to erect, straight or more usually shallowly incurved, slightly fleshy when fresh, often wrinkling when dry, becoming coriaceous, glabrous, grey-green to green, *midrib* more or less central; *lateral nerves* absent to faint, though more distinct than in *A. halliana*; *marginal nerves* narrow and yellow to light brown; *apices* narrowed to a small, straight to hooked, innocuous to coarsely pungent mucro; *gland* normally single on upper margin of phyllode (2-) 5–16 (-20) mm above pulvinus, rarely 2 or absent, lamina occasionally slightly kinked at the gland. *Inflorescences* simple and commonly 2 per axil or rudimentary racemes (1- or 2-headed) with axes to 1 mm long; *peduncles* (2-) 4–10 mm long, glabrous, yellowish or black when dry; *heads* globular, 8 mm diam. (when fresh, drying 4–5 mm diam.), (16-) 20–34 (-36) flowered, light- to mid-golden. *Flowers* 5-merous; *sepals* free, 1/3–1/2 petal length, oblong-oblanceolate to spatulate, with silver-golden hairs; *petals* glabrous. Ovary glabrous to subglabrous. Legumes ± terete, not or scarcely constricted between the seeds, to 70 mm long, 2.5–4 mm wide, firmly chartaceous to thinly crustaceous, strongly curved, black, with scattered short appressed hairs. *Seeds* longitudinal in pods, oblong-elliptic, 3–4 mm long, dull, dark brown; pleurogram U-shaped; *aril* terminal, conical, creamy white.

Selected specimens examined

SOUTH AUSTRALIA: Kangaroo Island, about 1 km S of top of Macgillivray Hill, *G.Jackson 1457* (AD); Hundred Line Road, Kangaroo Island, *M.C.O'Leary 2371* (AD, PERTH); Nurragi Reserve, Nurragi, *R.Grund AD119291*; Goolwa, 14.xii.1940, *J.B.Cleland AD 97427361*, *MEL 1500364* – mounted on holotype sheet of *A. × grayana*); Finniss Railway Station, 19.xii.1964, *J.B.Cleland AD 966061159*; Monarto South, about 3 km south of railway crossing on road to Chauncey's line, *H.Eichler 15106* (AD, CANB, MEL); Lower Murray River on Lake Alexandrina, ca. 15 km to Milang, *N.Gemmell 159* (AD); Monarto South, *E.H.Ising AD98583264*, 28.viii.1919; Monarto South, *E.H.Ising AD96221104*, 4.ix.1959 (K, L, B, BM, UC, P, USSR, IA); Princes Hwy, 3 km E of Monarto Sth Rd, *M.C.O'Leary 3289* (AD); Kangaroo Rd, 4 km S of Ferries McDonald Cons. Park, *M.C.O'Leary 3290* (AD); Finniss to Milang Road, *M.C.O'Leary 1295* (AD); Finniss to Milang Road, *D.E.Murfet 147* (AD); Finniss to Milang Road, *D.Hunt 2665* (AD); Pinehill North Road, 12 km N of Wolseley, *D.E.Murfet 3749* (AD); about 10 km N of Wolseley, *K.M.Alcock 115* (AD).

NEW SOUTH WALES: 4.8 km NE of West Wyalong, *R.Coveny 2376* (NSW, PERTH); West Wyalong to Temora Road, 0.5 km S of Mid-Western Highway, *M.C.O'Leary 3333* (AD); Merringreen and other stations in the Lachlan District, *T.Duff MEL 616110*, *674568*; Kikoira – Weethalla road, 20.ix.1956, *C.K.Ingram NSW 121887*.

at anthesis; I, sepals showing shape range; J, anthers; K, gynoeceum; L, pods (± terete, curved and black) inserted on receptacle; M, pod showing longitudinal seeds; N, seed showing terminal, conical aril and slender funicle; O, seed in plain view showing pleurogram (left) and side view (right); P, seed (transverse section); Q, seed (longitudinal section) showing embryo beneath aril, plane view (left) and side view (right). A & D ×1; B ×1/2; C ×18; E ×8; F ×7; G & H ×27; I, J & K ×56; L ×2; M ×6; N–Q ×9.

VICTORIA: 8 m. [13 km] S of Red Bluff, *R.V. Smith MEL 672784 (B.J. Conn no. 59/220)*; Little Desert, ix.1930, *H.B. Williamson MEL 616109*.

Distribution

Discontinuous in south-eastern Australia where it extends from South Australia (recorded from Kangaroo Island – rare, Southern Lofty and lower Murray Regions – locally common on some roadsides between Monarto South and Goolwa, and in the South East Region – uncommon in the Bordertown area) eastwards to far western Victoria (the Little and Big Deserts) and south-central New South Wales (near West Wyalong). The species distribution is mapped by Maslin (1987, Fig. 1) but the Eyre Peninsula locality shown there is now considered erroneous.

Habitat

Occurs in mallee and peppermint box woodland communities, with an annual rainfall of 350–500 mm. Appears to favour seasonally wet, shallow depressions in undulating country, on red-brown loam over limestone or ironstone. Associated species include *Eucalyptus odorata*, *E. gracilis*, *E. behriana*, *E. calycogona*, *E. phenax*, *E. cneorifolia*, *Acacia sclerophylla* var. *sclerophylla*, *A. microcarpa*, *A. brachybotrya* (appressed hair variant), *A. pinguiifolia*, *A. rheticocarpa*, *A. euthycarpa*, *Callistemon rugulosus*, *Melaleuca lanceolata* and *M. wilsonii*.

Conservation status

More fieldwork is needed to properly assess the conservation status of *A. simmonsiana*. Much of its natural habitat has been cleared for farming, which has contributed to the fragmented distribution pattern and small population sizes that are observed today; many of the remaining populations appear to be confined to roadverges. Using the criteria of Briggs & Leigh (1995), a code of 3RCa is recommended for *A. simmonsiana*.

Herbarium records suggest that *A. simmonsiana* is poorly conserved in South Australia. The only population known from Kangaroo Island is considered endangered; it comprises about 25 plants which are restricted to a small area of roadside vegetation. Populations from the Goolwa to Monarto South area are restricted to remnant roadside vegetation, with the species being conserved in the Nurragi Conservation Reserve, between Sandergrrove and Milang. Populations in the Bordertown area are reported as being scattered, though not common, and have been recorded on Heritage Agreement HA 953. Collections from the Big and Little Desert Conservation Parks in western Victoria may be of significance, in being some of the few areas in which this species occurs within a large intact area of natural vegetation, however, populations in these parks require assessment. The conservation status of plants from New South Wales (near West Wyalong) also require further assessment, as only several plants were observed growing on roadsides with *Eucalyptus behriana* during a recent visit to the area.

Flowering and fruiting period

Flowering has been recorded from August to October, peaking in September. Legumes with mature seeds have been collected in December. Dehisced legumes commonly persist on plants.

Affinities

Acacia simmonsiana is closely related to *A. halliana* which differs most obviously in having branchlets hairy (rarely glabrous) with an indumentum of fine, silvery, appressed hairs, new shoots densely clothed with pale yellow, appressed hairs, phyllodes straight to shallowly recurved, rarely oblanceolate, and generally larger (3–7 cm long and 4–15 mm wide), heads larger (35–55-flowered and c. 6 mm diam. when dry) and pods clearly constricted between the seeds and usually loosely and irregularly twisted. Other, relatively minor, differences between *A. simmonsiana* and *A. halliana* are given in Maslin (1987: 38–39). Habitat differences also exist between the two species: *A. simmonsiana* has a more southerly distribution (see Fig. 1 in Maslin 1987) and occurs in woodland / mallee communities with a 350–500 mm annual rainfall; favouring low depressions which become seasonally waterlogged. *Acacia halliana* on the other hand occurs in drier mallee communities with a 200–450 mm annual rainfall, and has no preference for seasonally waterlogged sites. Although the two species are not known to be sympatric they do occur within about 20 kilometers of one another in the Monarto area, near Murray Bridge, South Australia.

Acacia simmonsiana also appears to have affinities with the Western Australian endemic, *A. mutabilis* Maslin. Taxonomically important characters shared by these two species include their 1-nerved phyllodes, rudimentary racemose inflorescences, \pm terete, black pods and seeds with terminal, conical, creamy white arils. *Acacia mutabilis* subsp. *incurva* has incurved phyllodes, similar to those found on *A. simmonsiana*, however, the subspecies is recognised by its gland being located closer to the pulvinus and its generally shorter peduncles. As implied by its epithet *A. mutabilis* is a variable taxon and despite the treatment by Maslin (1999) further work is needed to better understand the nature of this variation (after which the relationship between this species and *A. simmonsiana* could be re-assessed).

Acacia simmonsiana superficially resembles *A. \times grayana* J.H.Willis which is distinguished by its hairy new shoots and peduncles, caducous stipules, linear phyllodes, broader pods (c. 6 mm wide) that are linear and straight, and funicle that is folded along one side of the seed. As noted by Maslin (1987) when Willis (1957) described *A. \times grayana* he contrasted his new species with *A. microcarpa*. The two specimens (both ex herb. J.M.Black) thought by Willis to be *A. microcarpa* are mounted with the holotype of *A. \times grayana* at MEL, however, neither is *A. microcarpa*. The flowering specimen from Mannum is *A. euthycarpa* (J.M.Black) J.M.Black (this species has recently been segregated from *A. calamifolia* Lindl.) while the fruiting specimen from Goolwa is *A. simmonsiana*.

Biology

Recorded as being a food plant for the blue-spotted lineblue butterfly, *Nacaduba biocellata* (R.Grund, pers. comm.).

Etymology

It is with much pleasure that we have the opportunity of naming this new species in honour of Marion and John Simmons. The Simmons have contributed significantly to promoting Australian acacias and to advancing our knowledge of this genus over the past two decades, Marion through her writing and illustrations and John through his photographs (see Simmons 1981, 1987 and 1988). Marion was the Leader of the Acacia Study Group for the Society for Growing Australian Plants (now known as the Australian Plant Society), from September 1978 until July 1991. She also most generously made

available around 450 of her fine line drawings for use in the WATTLE project (see Maslin 2001a).

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